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Attorney Docket No. P18652**Mail Stop Amendment**

In re application of : Gregory D. OLSON

Application No : 09/597,154

Group Art Unit: 2644

Filed : June 20, 2000

Examiner : D. Swerdlow

For : DEVICE AND METHOD FOR SUPPRESSING DSL SIGNAL ECHO INDUCED BY
 BRIDGETAP

Mail Stop Amendment

Commissioner for Patents

U.S. Patent and Trademark Office

Customer Service Window, Mail Stop _____

Randolph Building

401 Dulany Street

Alexandria, VA 22314

Sir:

Transmitted herewith is an **Appeal Brief Under 37 CFR § 41.37** in the above-captioned application.

___ Small Entity Status of this application under 37 C.F.R. 1.9 and 1.27 has been established by a previously filed statement.

___ A verified statement to establish small entity status under 37 C.F.R. 1.9 and 1.27 is enclosed.

___ An Information Disclosure Statement, PTO Form 1449, and references cited.

___ No additional fee is required.

The fee has been calculated as shown below:

Claims After Amendment	No. Claims Previously Paid For	Present Extra	Small Entity		Other Than A Small Entity	
			Rate	Fee	Rate	Fee
Total Claims: 25	25	0	X25=	\$	x 50=	\$0.00
Indep. Claims: 4	4	0	X100=	\$	X200=	\$0.00
Multiple Dependent Claims Presented			+180=	\$	+360=	\$0.00
Appeal Brief fee				\$		\$500.00
Total:				\$	Total:	\$500.00

___ Please charge my Deposit Account No. 19-0089 in the amount of \$_____.

☒ A Check in the amount of \$500.00 to cover the filing fee(s) is included.

☒ The U.S. Patent and Trademark Office is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 19-0089.

☒ Any additional filing fees required under 37 C.F.R. 1.16.

☒ Any patent application processing fees under 37 C.F.R. 1.17, including any required extension of time fees in any concurrent or future reply requiring a petition for extension of time for its timely submission (37 CFR 1.136)(a)(3).

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P18652.A09



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Gregory D. OLSON

Attn: Group Art Unit: 2644

Serial No: 09/597,154

Examiner: D. Swerdlow

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For: DEVICE AND METHOD FOR SUPPRESSING DSL SIGNAL ECHO
INDUCED BY BRIDGETAP

APPEAL BRIEF UNDER 37 C.F.R. §41.37

Commissioner for Patents
U.S. Patent and Trademark Office
Customer Service Window, Mail Stop Appeal Brief
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

This appeal is from the Examiner's rejection of claims 1-25, as set forth in the Final Official Action of December 20, 2004, and as maintained in the Advisory Action dated April 1, 2005.

A Notice of Appeal was filed on April 20, 2005 in response to the Final Official Action of December 20, 2004, and the two-month period for response was set to expire on June 20, 2005. The requisite fee for filing an Appeal Brief under 37 C.F.R. §1.17(c) is submitted herewith.

However, if for any reason, the necessary fee is not associated with this file or the attached fee is inadequate, the Commissioner is authorized to charge the fee for the Appeal Brief and any necessary extension of time fees to Deposit Account No. 19-0089.

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(1) REAL PARTY IN INTEREST

The real party in interest is SBC Technology Resources, Inc., as established by an assignment recorded in the U.S. Patent and Trademark Office on October 30, 2000, at Reel 011278 and Frame 0886.

(2) RELATED APPEALS AND INTERFERENCES

No related appeals and/or interferences are pending.

(3) STATUS OF THE CLAIMS

Claims 1-25 stand finally rejected. Claims 1, 9, 10, 14, 22 and 24 were amended in a Response filed on July 22, 2004, and claims 2-8, 11-13, 15-21, 23 and 25 are as originally filed. The rejection of each of claims 25 is hereby appealed. A copy of claims 1-25 is attached as an Appendix to this brief.

(4) STATUS OF THE AMENDMENTS

No amendments to the claims were filed under 37 C.F.R. § 1.116 after the Examiner's final rejection of the claims of December 20, 2004.

(5) SUMMARY OF THE CLAIMED SUBJECT MATTER

Initially, Appellant notes that the following descriptions are made with respect to the independent claims and include references to particular parts of the specification. As such, the following are merely exemplary and are not a

surrender of other aspects of the present invention that are also enabled by the present specification and that are directed to equivalent structures or methods.

The present invention relates to a system for improving digital subscriber line (DSL) transmission rates over standard telephone lines. The present invention reduces the effect of bridgetap echoes on DSL transmission rates. (Specification, page 2, lines 4-24 and page 3, lines 20-21).

Independent claim 1 requires a digital signal line transmission system with reduced echo, comprising: a communication line between a carrier and a user terminal; a bridgetap line having a first end connected to said communication line; an adaptor connected to said bridgetap line, the adaptor including a capacitor in parallel with one of another capacitor and a diode, said adaptor having a capacitance; wherein said adaptor reduces the effect of echo from said bridgetap line on a rate of data transmission to said user terminal over said communication line.

In this regard, exemplary embodiments of the present specification are shown in Figures 2-4 and disclosed at page 6, line 1 to page 7, line 21. The exemplary embodiments disclose a digital signal line transmission system with reduced echo (page 6, lines 16-18), comprising: a communication line (101, 102) between a carrier (100) and a user terminal (106); a bridgetap line (204, 206) having a first end connected to said communication line; an adaptor (200) connected to said bridgetap line, the adaptor including a capacitor (202) in parallel with one of another capacitor (Fig. 4) and a diode (Fig. 3), said adaptor having a capacitance (page 6, lines 5-7); wherein said adaptor reduces the effect

of echo from said bridgetap line on a rate of data transmission to said user terminal over said communication line (page 6, lines 16-18 and Table at page 7, lines 1-4).

Claim 14 requires a digital signal line transmission system with reduced echo, comprising: a communication line between a carrier and a user terminal; a bridgetap line having a first end spliced into said communication line, said bridgetap line having a length between approximately 250-650 feet; and an adaptor connected adjacent to a second end of said bridgetap line, said adaptor having a capacitance of 0.04-2.0 mf, said adaptor being water-tight and having a sufficient voltage rating to withstand being struck by lightning, and said adaptor including a capacitor in parallel with one of another capacitor and a diode; wherein said adaptor reduces the effect of echo from said bridgetap line on a rate of data transmission to said user terminal over said communication line.

In this regard, exemplary embodiments of the present specification are shown in Figures 2-4 and disclosed at page 6, line 1 to page 7, line 21. The exemplary embodiments disclose a digital signal line transmission system with reduced echo (page 6, lines 16-18), comprising: a communication line (101, 102) between a carrier (100) and a user terminal (106); a bridgetap line (204, 206) having a first end spliced into said communication line, said bridgetap line having a length between approximately 250-650 feet (Page 6, lines 16-18 and Table at page 7, lines 1-4); and an adaptor (200) connected adjacent to a second end of said bridgetap line, said adaptor having a capacitance of 0.04-2.0 mf (page 6, lines 8-9), said adaptor being water-tight (page 6, lines 3-4) and having a

sufficient voltage rating to withstand being struck by lightning (page 4, lines 25-26), and said adaptor including a capacitor (202) in parallel with one of another capacitor (Fig. 4) and a diode (Fig. 3); wherein said adaptor reduces the effect of echo from said bridgetap line on a rate of data transmission to said user terminal over said communication line (page 6, lines 16-18 and Table at page 7, lines 1-4).

Claim 22 requires a method for providing digital signal line service, comprising: identifying a communication line between a carrier and a user terminal; identifying a bridgetap line connected to said communication line; and changing a resonance characteristic of said bridgetap line to that of a bridgetap line longer than 650 feet with an adaptor that includes a capacitor in parallel with one of another capacitor and a diode.

In this regard, exemplary embodiments of the present specification are shown in Figures 2-4 and disclosed at page 6, line 1 to page 7, line 21. The exemplary embodiments disclose a method for providing digital signal line service, comprising: identifying a communication line (101, 102) between a carrier (100) and a user terminal (106); identifying a bridgetap line (204, 206) connected to said communication line; and changing a resonance characteristic of said bridgetap line to that of a bridgetap line longer than 650 feet (page 6, lines 12-18) with an adaptor (200) that includes a capacitor (202) in parallel with one of another capacitor (Fig. 4) and a diode (Fig. 3).

Claim 24 requires a method for providing digital signal line service, comprising: identifying a communication line between a carrier and a user

terminal; identifying a bridgetap extending between approximately 250-650 feet from said communication line; and connecting a portion of said bridgetap adjacent an end thereof with an adaptor having capacitance between approximately 0.04-2.0 mf where the adaptor includes a capacitor in parallel with one of another capacitor and a diode.

In this regard, exemplary embodiments of the present specification are shown in Figure 2-4 and disclosed at page 6, line 1 to page 7, line 21. The exemplary embodiments disclose a method for providing digital signal line service, comprising: identifying a communication line (101, 102) between a carrier (100) and a user terminal (106); identifying a bridgetap (204, 206) extending between approximately 250-650 feet from said communication line (Page 6, lines 16-18 and Table at page 7, lines 1-4); and connecting a portion of said bridgetap adjacent an end thereof with an adaptor (200) having capacitance between approximately 0.04-2.0 mf (page 6, lines 8-9) where the adaptor includes a capacitor (202) in parallel with one of another capacitor (Fig. 4) and a diode (Fig. 3).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

(A) Whether Claims 1-4, 6-10, 13, 22 and 23 are properly rejected under 35 U.S.C. §103(a) over PETT et al. (U.S. Patent No. 6,240,178) in view of ATKINSON et al. (U.S. Patent No. 5,093,856).

(B) Whether Claims 5, 24 and 25 are properly rejected under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of SCHMIDT et al. (U.S. Patent No. 6,389,109).

(C) Whether Claim 11 is properly rejected under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of MARTIN (U.S. Patent No. 4,622,442).

(D) Whether Claim 12 is properly rejected under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of CHARLES (U.S. Patent No. 5,929,402).

(E) Whether Claims 14-21 are properly rejected under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of SCHMIDT, and further in view of MARTIN, and further in view of CHARLES.

(7) ARGUMENT

(A) The Rejection of Claims 1-4, 6-10, 13, 22 and 23 under 35 U.S.C. §103(a) over PETT et al. (U.S. Patent No. 6,240,178) in view of ATKINSON et al. (U.S. Patent No. 5,093,856) is improper, and the Decision to Reject Claims 1-4, 6-10, 13, 22 and 23 on this Ground Should be Reversed.

In the Final Official Action of December 20, 2004, claims 1-4, 6-10, 13, 22 and 23 were rejected under 35 U.S.C. §103(a) over PETT et al. (U.S. Patent No. 6,240,178) in view of ATKINSON et al. (U.S. Patent No. 5,093,856). Appellant respectfully submits that the rejection of each of claims 1-4, 6-10, 13, 22 and 23 under 35 U.S.C. §103(a) over PETT in view of ATKINSON et al. is improper and

should be reversed. In this regard, Appellant hereinbelow addresses the rejection of claims on this ground in the numerical order of the claims.

Claim 1

Appellant respectfully submits that the prior art does not provide any motivation to modify the teachings of PETT with the teachings of ATKINSON. Appellant additionally submits that even the modification of PETT with the teachings of ATKINSON has not been shown to, and would not, result in the invention recited in claim 1.

The Final Official Action dated December 20, 2004 admits, at page 2, that PETT does not anticipate an “adaptor including a capacitor in parallel with one of another capacitor and a diode” as recited in claim 1. However, the Final Official Action asserts, at page 2, that it “would have been obvious to one skilled in the art... to apply the parallel diode as taught by Atkinson to the capacitor in the system taught by [PETT] for the purpose of protecting the capacitor from surges”.

The Final Official Action dated December 20, 2004 fails to establish any proper motivation in the prior art to modify the teachings of PETT with the teachings of ATKINSON. In this regard, neither PETT nor ATKINSON discloses or suggests any proper motivation to protect a capacitor in PETT from surges by applying the diode of ATKINSON in parallel to the capacitor of PETT.

The Advisory Action dated April 1, 2005 asserts that “[t]he teaching in Atkinson that a diode protects components from surges on a telephone line is applicable to any component or device connected to such a line”. Appellant

respectfully submits that the Advisory Action applies an improper standard of motivation as the basis for modifying the bridged tap terminator of PETT with the diode of ATKINSON. In this regard, using the broad motivation provided by the Advisory Action, a diode would be provided to “any component or device connected to [a telephone] line”. However, as a general principle, providing such diodes would complicate such components or devices, enlarge many such components or devices, and increase the cost of providing such components and devices. Moreover, there is no indication that a diode to provide surge protection is necessary in PETT. Accordingly, the broad motivation stated in the Advisory Action is not a proper motivation taught by the prior art but, rather, is the improper motivation of the Examiner to obtain Appellant’s claims in hindsight.

Further, ATKINSON discloses, at col. 4, lines 45-50, that a “[z]ener diode 235 is used to protect from high-voltage surges on the telephone line”. The zener diode 235 is shown in FIGs. 2 and 3A of ATKINSON. However, ATKINSON does not even disclose that the diode 235 is placed in parallel with a capacitor. For example, FIGs. 3A-3C in ATKINSON show that the terminals of diode 235 are not common with any other single element, let alone a capacitor, as is required for the diode 235 to be in parallel with such an element. Rather, the diode 235 is used generally to protect the system of ATKINSON from surges on telephone line T, as shown in FIG. 2, and appears to specifically protect the 600:600 ohm transformer 252 shown in FIG. 3A. However, Applicant’s claim 1 recites “in parallel with one of another capacitor and a diode”

Furthermore, the field of ATKINSON is not analogous to either the teachings of PETT or the invention recited in claim 1. In this regard, the Advisory Action asserts that “Atkinson, Pett and applicant’s invention are all related to devices connected to telephone lines”. However, ATKINSON is directed to a “home security system which inserts into series jack 110 via electrical plug 105” (see col. 4, lines 2-4). The “home security system” of ATKINSON is customer premise equipment, and is not analogous to an external digital signal line transmission system or the digital signal line service of PETT. In other words, the teachings of ATKINSON are not so closely related to the bridge tap terminator disclosed in PETT that one of ordinary skill in the art would be motivated to provide the diode in ATKINSON to the bridge tap terminator of PETT.

Accordingly, the prior art does not provide a proper motivation to apply the disparate teachings of a diode in ATKINSON to “any component or device connected to a [telephone] line”, as asserted in the Advisory Action. Moreover, the Examiner has not provided any other motivation to apply the specific teachings of ATKINSON to the bridged tap terminator of PETT.

Additionally, the rejection is based on the assertion that PETT inherently discloses the feature recited in claim 1 of “said adaptor reduces the effect of echo from said bridgetap line on a rate of data transmission to said user terminal over said communication line”. In particular, the Advisory Action cites to a National Instruments document for the proposition that the matching circuit 62 of the bridged tap terminator in PETT inherently possesses the above-noted

characteristic and effect recited in claim 1. In this regard, the National Instruments document cited in the Advisory Action discloses that reflection occurs when a signal passes between different mediums with different impedances. However, the matching circuit 62 of the bridged tap terminator 50 in PETT is disclosed to match the impedance of the bridged tap 32. See PETT, col. 5, lines 21-31. Accordingly, the matching circuit 62 will ensure that reflections are not generated when a signal passes from the bridged tap 32 to the bridged tap terminator 50. However, this does not mean that the impedance matching using C_L reduces the effect of echo, let alone that the impedance matching using C_L reduces the effect of echo from the bridged tap 32 to the subscriber loop 30 in PETT.

Claims 2-4 and 6-7, 8-10 and 13

Appellant additionally submits that claims 2-4 and 6-7, 8-10 and 13 are allowable, at least for the reason that these claims depend, directly or indirectly from claim 1, respectively, and because these claims recite additional features that further define the present invention. Appellant further submits that claims 2-4 and 6-7, 8-10 and 13 are separately patentable over PETT in view of ATKINSON, which fail to disclose, suggest or render obvious, in the claimed combination, *inter alia*,

- (i) said capacitance is between approximately 0.04-2.0 mf (claim 2);
- (ii) said capacitance is approximately 0.05 mf (claim 3);
- (iii) said capacitance is approximately 0.068 mf (claim 4);

(iv) said adaptor changes a resonance characteristic of said bridgetap line to that of a bridgetap line that is at least approximately 300 feet longer (claim 6);

(v) said adaptor changes a resonance characteristic of said bridgetap line to that of a bridgetap line that is approximately 400 feet longer (claim 7);

(vi) wherein said bridgetap splices into said communication line within approximately 1000 feet from the user terminal (claim 8);

(vii) wherein said adaptor improves said rate of data transmission by at least approximately 300 kb/s (claim 9);

(viii) wherein said adaptor improves said rate of data transmission by approximately 300-566 kb/s (claim 10); and

(ix) wherein said adaptor is connected adjacent to a second end of said bridgetap (claim 13).

Claim 2

For example, with respect to the rejection of claim 2, the Advisory Action asserts, at page 4, that:

“at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize the capacitance values claimed. Applicant has not disclosed that the capacitance being the claimed value provided an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicants’ invention to perform equally well with a capacitance of .023

microfarads (Pett: column 5, lines 25-29) because of the extreme variability in the properties of the bridged tap".

Appellant submits that the above-noted assertions are in error. In particular, Appellant's present specification discloses, at page 6, line 5-11, that "[a] capacitance between approximately 0.040-2.0 mf will achieve" a change in the resonance characteristic of a bridgetap to simulate the resonance characteristic of a much longer bridgetap. Accordingly, contrary to the Examiner's assertion, Appellant has disclosed an advantage resulting from the claimed value.

Additionally, the Examiner is considering the teaching of only the load capacitance of the impedance matching circuit 62, i.e., C_L . In this regard, claim 2 recites that the "capacitance [of said adaptor] is between approximately .04-2.0 mf" (i.e., 40-2000 nF). However, the value of C_L in PETT of 23nF (i.e., .023 mF) is not in the range recited in claim 2. Furthermore, the bridged tap terminator in the cited configuration of PETT also includes additional capacitance values not considered by the Examiner (i.e., C_1 and C_2), and these values are being ignored by the Examiner in his determination of the capacitance of the bridged tap terminator 50 in PETT.

Furthermore, even if it were appropriate to consider C_L in PETT in isolation, there would be no motivation to alter this capacitance. In this regard, PETT discloses, at col. 5, lines 26-39, that "[v]alues of 106 ohms and 23 nF were chosen as the resistance and capacitance, respectively, that reflect nominal characteristic impedance values for bridged tap 32 across DSL frequency range

46". In other words, the value of C_L noted by PETT is a matching value for the characteristic impedance value for bridged tap 32. Accordingly, there is no reason to modify even the isolated value of C_L in PETT, because such modification would eliminate the purpose of C_L (i.e., to match the nominal capacitive reactance of the bridged tap 32 in the DSL frequency range).

Accordingly, the only motivation to modify the value of C_L in PETT to obtain the value recited in claim 2 of the present application is the improper motivation of the Examiner to obtain Appellant's claim in hindsight. Further, it is improper to consider the value of C_L in isolation, as the values of C_1 and C_2 also need to be considered in order to determine the capacitance value of the bridged tap terminator 50 in PETT. However, the Examiner has ignored the effects of C_1 and C_2 in assigning a capacitance value to the bridged tap terminator 50 in PETT. In any case, as noted above, even the value assigned by the Examiner is not a value within the range recited in Appellant's claim 2, and modifying the value C_L noted in PETT would destroy the function of the matching circuit 62 to match the nominal impedance of the bridged tap 32.

Claims 3 and 4

Claims 3 and 4 recite specific capacitance values within the capacitance range recited in claim 2. As noted above, there is no motivation to modify the value C_L in PETT, as modifying the value noted in PETT would destroy the function of the matching circuit 62 to match the nominal impedance of the bridged tap 32.

Further, the Final Official Action asserts, at pages 3 and 4, that “Applicant has not disclosed that the capacitance being approximately” 0.05 or .068 microfarads “provides an advantage, is used for a particular purpose, or solves a stated problem”. These assertions are entirely in error. In this regard, the capacitance values recited in claims 3 and 4 are described at page 6, lines 5-11, as the nominal capacitance values for 24 AWG and 26 AWG wiring. In this regard, even though PETT explicitly admits contemplating such 24 AWG and 26 AWG wiring (see col. 5, line 19), PETT does not arrive at the benefit of using the Appellant’s recited capacitance values as the value of C_L . Rather, the value of C_L in PETT is matched to the nominal value of impedance of the bridgetap in PETT, such that any alteration of the value disclosed in PETT would destroy the purpose of C_L in PETT.

Accordingly, the only motivation to modify the value of C_L in PETT to obtain the values recited in claims 3-4 of the present application is the improper motivation of the Examiner to obtain Appellant’s claims in hindsight. Further, as noted above, modifying the value of C_L in PETT in the manner asserted by the Examiner would destroy the teachings of PETT to match the impedance for the bridged tap 32 with the impedance of the impedance matching circuit 62.

Claim 6 and 7

Claims 6 and 7 recite that “said adaptor changes a resonance characteristic of said bridgetap line to that of a bridgetap line that is approximately” 300 feet longer and 400 feet longer, respectively. In this regard,

the Final Official Action asserts, at page 4, that “claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function” citing in re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir.1997). Appellant interprets this statement by the Examiner as asserting that the features recited in claims 6 and 7 are inherent in PETT, as otherwise the above-noted characterization of the holding of in re Schreiber is entirely inaccurate.

Appellant respectfully submits that the above-noted interpretation of the law is in error. In this regard, in re Schreiber is not a holding that permits Examiners to ignore positively recited functions and characteristics of a claimed apparatus. Rather, in re Schreiber merely follows precedent in holding that the recitation of a new intended use for an old product does not make a claim to that old product patentable. However, the present claims recite neither an intended use nor an old product. In this regard, the bridge tap terminator 50 in PETT does not anticipate the features recited in claims 6 and 7, as would be true if the recited features, in the claimed combination, were expressly or inherently present in the bridged tap terminator 50 in PETT.

For example, the resonance characteristic of the bridgetap line according to the present invention is changed to that of a longer bridgetap line by the capacitance of the capacitor(s) recited in claim 1. However, the Examiner has not provided any reason that the bridged tap terminator 50 disclosed in PETT would inherently obtain such a result. In this regard, the capacitance value for C_L used in PETT is lower by approximately 50% than even the lower end of the

range of capacitance values disclosed in the present application to achieve the increase in effective bridgetap length. Further, C_L in PETT is part of a ladder (cascaded) CR circuit that would need to be analyzed as a first order (Fig. 7) or second order (Fig. 8) highpass filter 60, combined with the load CR circuit 62, in order to determine the resultant responsive impedance characteristics.

For example, assuming that the high-pass filter 60 has no effect on the resonance characteristics in PETT (an assumption impliedly made in the rejections by ignoring the effect of the capacitors C_1 and C_2), the resonance characteristics of the bridged tap terminator 50 on the bridged tap 32 might result only from the load matching circuit 62 considered in series with the bridged tap 32. However, given the great relative difference between the capacitor recited in Appellant's claims and the capacitor C_L , the resonance characteristics resulting from the capacitance values recited in claims 6 and 7 would not be obtained from the capacitance value C_L disclosed in PETT. Rather, given that the load value is set to the capacitance value of the bridged tap 32 (i.e., each is set to 23 nF), the resultant combined capacitance would be approximately $C^2/2C$ (i.e., $C_1C_2/(C_1+C_2)$, where C_1 and C_2 are equal), or 11.5 nF. In contrast, using the same method for considering Appellant's capacitance (i.e., in series with the bridge tap, and using the value of 23 nF as set forth in PETT), the lower end of Appellant's range, i.e., 40 nF, would result in an effective bridge tap capacitance of 13.65 nF (i.e., $23 \cdot 40 / (23 + 40)$), and the upper end of Appellant's range, i.e., 200 nF, would result in an effective bridge tap capacitance value of 20.63 nF (i.e., $23 \cdot 200 / (23 + 200)$).

Accordingly, by setting the effective capacitance value of the bridge tap within the specified range, Appellant's invention changes the effective length of the bridgetap to that of a longer bridgetap. In contrast, using the Examiner's own assumptions, the effective capacitance of the bridged tap 32 in PETT would not fall within the expected range of effective capacitance resulting from Appellant's disclosed values. Accordingly, there is no reason to believe that PETT would obtain the beneficial characteristics recited in claims 6 and 7. Accordingly, the beneficial feature recited in claims 6 and 7 is not an inherent result of the bridged tap terminator 50 in PETT.

Appellant further notes in his disclosure at page 2, lines 17-19, that "signal degradation will define a generally bell shaped curve between 250-650 feet, with maximum losses between 300 and 500 feet. In this regard, insofar as the effects of the bridged tap circuit in PETT are not established in PETT or by the Examiner, there is no basis for any assertion that the resonance characteristic resulting from the bridged tap terminator 50 in PETT is changed to that of a line at least approximately 300 or 400 feet longer as recited in claims 6 and 7. Rather, the resonance characteristic may be changed to that of a line significantly less than 300 feet longer.

Accordingly, Appellant respectfully submits that PETT does not inherently possess the characteristic of the system recited in claims 6 and 7. Appellant further notes that a change in the effective length of the bridged tap is not explicitly disclosed in PETT. Appellant further submits that, as noted above, it would not be obvious to modify the capacitance value of C_L in PETT, as such a

modification would destroy the intent of PETT to match the capacitance of the bridged tap.

Claims 9-10

Further, the invention recited in claims 9 and 10 provides an improvement in the rate of data transmission of 300 kb/s and 300-566 kb/s respectively. As is noted in the present specification, these rates of improvement correspond to the change in effective length that is achieved using the particular effective capacitance values and range disclosed in the present specification. The improvements in the rate of data transmission depend entirely on the preexisting effective length of the bridge tap and on the effective length of the bridged tap once modified by the recited adaptor. However, as it appears the effective length that would be achieved by PETT would be significantly less than 300 feet more than the original effective length, it is not inherent that PETT would obtain the recited rates of improved data transmission. In this regard, an inappropriate improvement in effective length, according to the bell shaped curve described at page 2 of Appellant's specification, may actually worsen the rate of data transmission.

Accordingly, Appellant respectfully submits that PETT does not expressly or inherently disclose the recited characteristics of the system in Appellant's claims 9 and 10. Appellant further submits that, as noted above, it would not be obvious to modify the capacitance value in PETT to obtain the change in rates of

data transmission, as such a modification would destroy the intent of PETT to match the capacitance of the bridged tap.

Claim 22

Claim 22 recites features similar to several of the above-noted features recited in claim 1 and 6-7. In this regard, claim 22 recites changing a resonance characteristic of said bridgetap line to that of a bridgetap line longer than 650 feet with an adaptor that includes a capacitor in parallel with one of another capacitor and a diode. Further, claim 22 was rejected on the same grounds as claim 1, i.e., over PETT in view of ATKINSON.

Appellant respectfully submits that the rejection of claim 22 over PETT in view of ATKINSON is improper and should be reversed. In this regard, there is no motivation to modify the bridged tap terminator 50 of PETT with the diode 235 of ATKINSON.

Further, PETT does not explicitly or inherently disclose that the effective length of the bridged tap 32, after modification with the bridged tap terminator 50, is longer than 650 feet. In this regard, and only as an example, if a bridged tap of 250 feet was modified with the bridged tap terminator 50 of PETT to have an effective length of an additional 250 feet, the resultant characteristic would be that of a bridged tap with an effective length of 500 feet. While PETT is silent as to the length of the bridged tap 32 to be terminated, and the change in effective length resulting from the bridged tap terminator 50, there is no reason to expect that the bridged tap 32 modified by the bridged tap terminator 50 would have a

“resonance characteristic... of a bridgetap line longer than 650 feet” as recited in claim 22.

Accordingly, Appellant respectfully submits that PETT (as well as the combination of PETT and ATKINSON) does not disclose, suggest or render obvious the above-noted features of claim 22. Appellant further submits that no other reference applied in the outstanding rejections discloses or suggests such features; nor does the Final Official Action assert that any other reference discloses or suggests such features. Appellant further submits that there has been no assertion, let alone a showing, of any proper motivation in the prior art to modify PETT to obtain the above-noted features recited in claim 22.

Claim 23

Appellant additionally submits that claim 23 is allowable, at least for the reason that this claim depends, directly or indirectly from claim 22, and because this claim recites additional features that further define the present invention. Appellant further submits that claim 23 is separately patentable over PETT in view of ATKINSON, which fail to disclose, suggest or render obvious, in the claimed combination, *inter alia*,

- (i) providing digital signal line service to said user terminal.

Accordingly, Appellant respectfully submits that PETT (as well as the combination of PETT and ATKINSON) does not disclose, suggest or render obvious the combination of features recited in claims 1-4, 6-7, 8-10, 13, 22 and 23. Appellant further submits that no other reference applied in the rejections

discloses, suggests or renders obvious the above-noted features recited in claims 1-4, 6-7, 8-10, 13, 22 and 23; nor has the Examiner asserted that any other reference discloses, suggests or renders obvious such features. Appellant further submits that there has been no assertion, let alone a showing, of any proper motivation in the prior art to modify PETT to obtain the above-noted features recited in claims 1-4, 6-7, 8-10, 13, 22 and 23.

(B) The Rejection of Claims 5, 24 and 25 under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of SCHMIDT et al. (U.S. Patent No. 6,389,109) is improper, and the Decision to Reject Claims 5, 24 and 25 on this Ground Should be Reversed.

In the Final Official Action of December 20, 2004, the Examiner rejected claims 5, 24 and 25 under 35 U.S.C. §103(a) over PETT et al. (U.S. Patent No. 6,240,178) in view of ATKINSON et al. (U.S. Patent No. 5,093,856), and further in view of SCHMIDT et al. (U.S. Patent No. 6,389,109). Appellant respectfully submits that the rejection of each of claims 5, 24 and 24 under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of SCHMIDT et al. is improper and should be reversed. In this regard, Appellant hereinbelow addresses the rejection of claims on this ground in the numerical order of the claims.

Claim 5

Appellant additionally submits that claim 5 is allowable, at least for the reason that this claim depends, directly or indirectly from claim 1, and because this claim recites additional features that further define the present invention. Appellant further submits that claim 5 is separately patentable over PETT in view of ATKINSON, and further in view of SCHMIDT which fail to disclose, suggest or render obvious, in the claimed combination, *inter alia*,

(i) wherein a length of said bridgetap line is between approximately 250-650 feet (claim 5).

Claim 24

Claim 24 recites features similar to the above-noted features recited in claims 1, 2, 5 and 22. In this regard, claim 24 recites:

“identifying a bridgetap extending between approximately 250-650 feet from said communication line; and

connecting a portion of said bridgetap adjacent an end thereof with an adaptor having capacitance between approximately 0.04-2.0 mf where the adaptor includes a capacitor in parallel with one of another capacitor and a diode”.

Appellant notes that SCHMIDT is applied only as teaching the feature of “identifying a bridgetap extending between approximately 250-650 feet from said communication line”. At least because of the numerous other reasons for the patentability of the features recited in claim 24 (which SCHMIDT does not

supply), Appellant will forego a discussion as to whether SCHMIDT discloses or suggests this feature.

As noted above with respect to claim 2, PETT does not disclose, suggest or render obvious using an “adaptor having capacitance between approximately 0.04-2.0 mF”. In this regard, modifying the value of the capacitor C_L in PETT would destroy the intention of PETT to match the capacitance of the bridged tap. Further, there is no teaching anywhere in PETT that the capacitance of the bridged tap terminator 50 is between approximately 40nF-200nF, nor has the Examiner asserted that PETT discloses, either explicitly or inherently, such a feature. Additionally, for the reasons noted above, there is no motivation to modify the capacitor of PETT with the teachings of any other reference to change the capacitance value of C_L . Accordingly, the combination of PETT in view of ATKINSON, and further in view of SCHMIDT, does not disclose, suggest or render obvious an “adaptor having capacitance between approximately 0.04-2.0 mF” as recited in claim 24.

Further, as noted above with respect to claims 1 and 22, PETT does not disclose, suggest or render obvious “where the adaptor includes a capacitor in parallel with one of another capacitor and a diode”. Because Appellant has already discussed why it would not be obvious to modify the bridged tap terminator 50 of PETT with the diode 235 of ATKINSON, Appellant will forego further discussion of this feature.

Accordingly, Appellant respectfully submits that PETT (as well as the combination of PETT and ATKINSON and SCHMIDT) does not disclose, suggest

or render obvious the above-noted features of claim 24. Appellant further submits that no other reference applied in the rejections discloses or suggests such features; nor has the Examiner asserted that any other reference discloses or suggests such features. Appellant further submits that there has been no assertion, let alone a showing, of any proper motivation in the prior art to modify PETT to obtain the above-noted features recited in claim 24.

Claim 25

Appellant additionally submits that claim 25 is allowable, at least for the reason that this claim depends, directly or indirectly from claim 24, and because this claim recites additional features that further define the present invention. Appellant further submits that claim 25 is separately patentable over PETT in view of ATKINSON, and further in view of SCHMIDT which fail to disclose, suggest or render obvious, in the claimed combination, *inter alia*,

(i) providing digital signal line service to said user terminal.

Accordingly, Appellant respectfully submits that PETT (as well as the combination of PETT, ATKINSON and SCHMIDT) does not disclose, suggest or render obvious the combination of features recited in claims 5, 24 and 25. Appellant further submits that no other reference applied in the rejections discloses or suggests the above-noted features recited in claims 5, 24 and 25; nor has the Examiner asserted that any other reference discloses or suggests such features. Appellant further submits that there has been no assertion, let

alone a showing, of any proper motivation in the prior art to modify PETT to obtain the above-noted features recited in claims 5, 24 and 25.

(C) The Rejection of Claim 11 under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of MARTIN (U.S. Patent No. 4,622,442) is improper, and the Decision to Reject Claim 11 on this Ground Should be Reversed.

In the Final Official Action of December 20, 2004, the Examiner rejected claim 11 under 35 U.S.C. §103(a) over PETT et al. (U.S. Patent No. 6,240,178) in view of ATKINSON et al. (U.S. Patent No. 5,093,856), and further in view of MARTIN (U.S. Patent No. 4,622,442). Appellant respectfully submits that the rejection of claim 11 under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of MARTIN is improper and should be reversed.

Claim 11

Appellant additionally submits that claim 11 is allowable, at least for the reason that this claim depends, directly or indirectly from claim 1, and because this claim recites additional features that further define the present invention. Appellant further submits that claim 11 is separately patentable over PETT in view of ATKINSON, and further in view of MARTIN which fail to disclose, suggest or render obvious, in the claimed combination, *inter alia*,

(i) wherein said capacitance has a voltage rating of least 150 v.

Accordingly, Appellant respectfully submits that PETT (as well as the combination of PETT, ATKINSON and MARTIN) does not disclose, suggest or render obvious the combination of features recited in claim 11. Appellant further submits that no other reference applied in the rejections discloses or suggests the above-noted features recited in claim 11; nor has the Examiner asserted that any other reference discloses or suggests such features. Appellant further submits that there has been no assertion, let alone a showing, of any proper motivation in the prior art to modify PETT to obtain the above-noted features recited in claim 11.

(D) The Rejection of Claim 12 under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of CHARLES (U.S. Patent No. 5,929,402) is improper, and the Decision to Reject Claim 12 on this Ground Should be Reversed.

In the Final Official Action of December 20, 2004, the Examiner rejected claim 12 under 35 U.S.C. §103(a) over PETT et al. (U.S. Patent No. 6,240,178) in view of ATKINSON et al. (U.S. Patent No. 5,093,856), and further in view of CHARLES (U.S. Patent No. 5,929,402). Appellant respectfully submits that the rejection of claim 12 under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of CHARLES is improper and should be reversed.

Claim 12

Appellant additionally submits that claim 12 is allowable, at least for the reason that this claim depends, directly or indirectly from claim 1, and because this claim recites additional features that further define the present invention. Appellant further submits that claim 12 is separately patentable over PETT in view of ATKINSON, and further in view of CHARLES which fail to disclose, suggest or render obvious, in the claimed combination, *inter alia*,

(i) wherein said adaptor is water-tight.

Accordingly, Appellant respectfully submits that PETT (as well as the combination of PETT, ATKINSON and CHARLES) does not disclose, suggest or render obvious the combination of features recited in claim 12. Appellant further submits that no other reference applied in the rejections discloses or suggests the above-noted features recited in claim 12; nor has the Examiner asserted that any other reference discloses or suggests such features. Appellant further submits that there has been no assertion, let alone a showing, of any proper motivation in the prior art to modify PETT to obtain the above-noted features recited in claim 12.

(E) The Rejection of Claims 14-21 under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of SCHMIDT, and further in view of MARTIN, and further in view of CHARLES is improper, and the Decision to Reject Claims 14-21 on this Ground Should be Reversed.

In the Final Official Action of December 20, 2004, the Examiner rejected claims 14-21 under 35 U.S.C. §103(a) over PETT et al. (U.S. Patent No. 6,240,178) in view of ATKINSON et al. (U.S. Patent No. 5,093,856), and further in view of SCHMIDT, and further in view of MARTIN and further in view of CHARLES. Appellant respectfully submits that the rejection of claims 14-21 under 35 U.S.C. §103(a) over PETT in view of ATKINSON, and further in view of SCHMIDT, and further in view of MARTIN and further in view of CHARLES is improper and should be reversed. In this regard, Appellant hereinbelow addresses the rejection of claims on this ground in the numerical order of the claims.

Claim 14

Claim 14 recites numerous features similar to the features discussed above with respect to the rejection of claims 1, 2 and 22. At least for reasons similar to the reasons noted above with respect to the rejections of claims 1, 2 and 22, Appellant respectfully submits that the rejection of claim 14 is improper and should be reversed.

In this regard, claim 14 recites "an adaptor... having a capacitance of .04-2.0 mF". As noted above, there is no motivation to modify the bridgetap terminator of PETT to have a capacitance falling within this range. Further, modification of the value C_L to fall within this range would appear to destroy the intent of PETT to have the load matching circuit 62 match the impedance of the bridged tap 32.

Claim 14 also recites “said adaptor including a capacitor in parallel with one of another capacitor and a diode”. As noted above, there is no proper motivation in the prior art to modify the bridgetap terminator 50 of PETT to include the diode 235 of ATKINSON. Rather, the only motivation to modify the bridgetap terminator 50 of PETT in this manner is the improper motivation of the Examiner to obtain Appellant’s claimed invention in hindsight.

Claim 14 additionally recites “wherein said adaptor reduces the effect of echo from said bridgetap line on a rate of data transmission to said user terminal over said communication line”. However, in view of the teachings of the National Standards document cited by the Examiner, PETT should not be interpreted as disclosing, explicitly or inherently, the above-noted feature. Rather, because the load matching circuit 62 of the bridged tap terminator 50 matches the impedance of the bridged tap 32, it appears that the load matching circuit 62 only ensures that the bridged tap terminator 50 does not create additional echo as a result of an impedance mismatch between the bridged tap 32 and the bridged tap terminator 50.

Accordingly, Appellant respectfully submits that PETT (as well as the combination of PETT and ATKINSON and SCHMIDT and MARTIN and CHARLES) does not disclose, suggest or render obvious the above-noted features of claim 14. Appellant further submits that no other reference applied in the rejections discloses or suggests such features; nor has the Examiner asserted that any other reference discloses or suggests such features. Appellant further submits that there has been no assertion, let alone a showing, of any

proper motivation in the prior art to modify PETT to obtain the above-noted features recited in claim 14.

Claims 15-21

Appellant additionally submits that claims 15-21 are allowable, at least for the reason that these claims depend, directly or indirectly from claim 14, and because these claims recite additional features that further define the present invention. Appellant further submits that claims 15-21 are separately patentable over PETT in view of ATKINSON, and further in view of SCHMIDT, and further in view of MARTIN, and further in view of CHARLES, which fail to disclose, suggest or render obvious, in the claimed combination, *inter alia*,

(i) wherein said capacitance is approximately 0.05 mf (claim 15);

(ii) wherein said capacitance is approximately 0.068 mf (claim 16);

(iii) wherein said adaptor changes a resonance characteristic of said bridgetap line to that of bridgetap line that is at least approximately 300 feet longer (claim 17);

(iv) wherein said adaptor changes a resonance characteristic of said bridgetap line to that of bridgetap line that is at least approximately 400 feet longer; (claim 18)

(v) wherein said bridgetap splices into said communication line within approximately 1000 feet from said user terminal (claim 19);

(vi) wherein said adaptor improves said rate by at least approximately 300 kb/s (claim 20); and

(vii) wherein said adaptor improves said rate by approximately 300-566 kb/s (claim 21).

In this regard, Appellant notes that he has previously discussed the additional features recited in claims 15-18 and 20-21, and will forego further explanation as to why these features are not disclosed, either expressly or inherently, nor suggested or rendered obvious, by any of the references applied in the Final Official Action, whether considered alone or in combination.

Accordingly, Appellant respectfully submits that PETT (as well as the combination of PETT, ATKINSON, SCHMIDT, MARTIN and CHARLES) does not disclose, suggest or render obvious the combination of features recited in claims 14-21. Appellant further submits that no other reference applied in the rejections discloses or suggests the above-noted features recited in claims 14-21; nor has the Examiner asserted that any other reference discloses or suggests such features. Appellant further submits that there has been no assertion, let alone a showing, of any proper motivation in the prior art to modify PETT to obtain the above-noted features recited in claims 14-21.

Accordingly, for each and all of the reasons noted above, Appellant submits that the rejection of claims 1-25 under 35 U.S.C. §103(a) is inappropriate and unsupported by the proposed combination of PETT, ATKINSON, SCHMIDT, MARTIN and/or CHARLES. Therefore, Appellant respectfully requests that the decision of the Examiner to reject claims 1-25 under 35 U.S.C. §103(a) be reversed, and that the application be returned to the Examiner for withdrawal of

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the rejections over PETT, ATKINSON, SCHMIDT, MARTIN and/or CHARLES,
and an early allowance of claims 1-25 on appeal.

(9) CONCLUSION

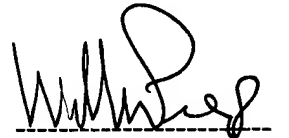
Appellant has made a sincere effort to place the present application in condition for allowance and believes that he has now done so. Appellant has explained the combination of features recited in claims 1, 14, 22 and 24, and has shown how these features are not disclosed, suggested or rendered obvious by the combination of references applied in the Final Official Action dated December 20, 2004. Accordingly, at least for the reasons set forth herein, Appellant respectfully requests reconsideration and withdrawal of each of the rejections, as well as an indication of the allowability of each of the claims now pending in due course.

Should the Examiner have any questions, please contact the undersigned at the telephone number provided below.

June 20, 2005
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APPENDIX

1. (Previously Presented) A digital signal line transmission system with reduced echo, comprising:

a communication line between a carrier and a user terminal;
a bridgetap line having a first end connected to said communication line;
an adaptor connected to said bridgetap line, the adaptor including a capacitor in parallel with one of another capacitor and a diode, said adaptor having a capacitance;

wherein said adaptor reduces the effect of echo from said bridgetap line on a rate of data transmission to said user terminal over said communication line.

2. (Original) The system of claim 1, wherein said capacitance is between approximately 0.04-2.0 mf.

3. (Original) The system of claim 2, wherein said capacitance is approximately 0.05 mf.

4. (Original) The system of claim 2, wherein said capacitance is approximately 0.068 mf.

5. (Original) The system of claim 1, wherein a length of said bridgetap line is between approximately 250-650 feet.

6. (Previously Presented) The system of claim 1, wherein said adaptor changes a resonance characteristic of said bridgetap line to that of a bridgetap line that is at least approximately 300 feet longer.

7. (Original) The system of claim 6, wherein said adaptor changes a resonance characteristic of said bridgetap line to that of a bridgetap line that is approximately 400 feet longer.

8. (Previously Presented) The system of claim 1, wherein said bridgetap splices into said communication line within approximately 1000 feet from the user terminal.

9. (Previously Presented) The system of claim 1, wherein said adaptor improves said rate of data transmission by at least approximately 300 kb/s.

10. (Previously Presented) The system of claim 1, wherein said adaptor improves said rate of data transmission by approximately 300-566 kb/s.

11. (Original) The system of claim 1, wherein said capacitance has a voltage rating of at least 150 v.

12. (Original) The system of claim 1, wherein said adaptor is water-tight.

13. (Original) The system of claim 1, wherein said adaptor is connected adjacent to a second end of said bridgetap.

14. (Previously Presented) The digital signal line transmission system with reduced echo, comprising:

a communication line between a carrier and a user terminal;

a bridgetap line having a first end spliced into said communication line, said bridgetap line having a length between approximately 250-650 feet; and

an adaptor connected adjacent to a second end of said bridgetap line, said adaptor having a capacitance of 0.04-2.0 mf, said adaptor being water-tight and having a sufficient voltage rating to withstand being struck by lightning, and said adaptor including a capacitor in parallel with one of another capacitor and a diode;

wherein said adaptor reduces the effect of echo from said bridgetap line on a rate of data transmission to said user terminal over said communication line.

15. (Original) The system of claim 14, wherein said capacitance is approximately 0.05 mf.

16. (Original) The system of claim 14, wherein said capacitance is approximately 0.068 mf.

17. (Original) The system of claim 14, wherein said adaptor changes a resonance characteristic of said bridgetap line to that of bridgetap line that is at least approximately 300 feet longer.

18. (Original) The system of claim 14, wherein said adaptor changes a resonance characteristic of said bridgetap line to that of bridgetap line that is at least approximately 400 feet longer.

19. (Original) The system of claim 14, wherein said bridgetap splices into said communication line within approximately 1000 feet from said user terminal.

20. (Original) The system of claim 14, wherein said adaptor improves said rate by at least approximately 300 kb/s.

21. (Original) The system of claim 14, wherein said adaptor improves said rate by approximately 300-566 kb/s.

22. (Previously Presented) A method for providing digital signal line service, comprising:

identifying a communication line between a carrier and a user terminal;
identifying a bridgetap line connected to said communication line; and

changing a resonance characteristic of said bridgetap line to that of a bridgetap line longer than 650 feet with an adaptor that includes a capacitor in parallel with one of another capacitor and a diode.

23. (Original) The method of claim 22, further comprising providing digital signal line service to said user terminal.

24. (Previously Presented) A method for providing digital signal line service, comprising:

identifying a communication line between a carrier and a user terminal;

identifying a bridgetap extending between approximately 250-650 feet from said communication line; and

connecting a portion of said bridgetap adjacent an end thereof with an adaptor having capacitance between approximately 0.04-2.0 mf where the adaptor includes a capacitor in parallel with one of another capacitor and a diode.

25. (Original) The method of claim 24, further comprising providing digital signal line service to said user terminal.